**Management Information System (MIS):**

The MIS, plays a vital role in the management, administration and operation of an organization. The system ensures that an appropriate data is collected from the various sources, processed and send further to all the needy destinations. The system is expected to fulfill the information needs of an individual, a group of individuals, the management functionaries: the managers and top management. A MIS needs to have the necessary components in order to collect, process, store, and retrieve the needed information to deliver to leaders.

**Below are four important components of a MIS:**

**Information system:** A mix of hardware, software, personnel, and infrastructure that aids in the collection of data stored in the MIS. The information system component allows employees to interact with the system for information collection.

**Database management system (DBMS):** Software that handles the storage, retrieval, and updating of data in a computer system. It also includes the physical databases where information is stored after capture. The amount of data needing to be processed and stored will determine the type of DBMS used in the MIS. For example, a small DBMS may work well for a personal computer, but a larger DBMS will be needed for larger and more complex machines.

**Intelligence system:** Deals with the processing of collected data and presenting it in a way that is easily comprehended. This is sometimes referred to as business intelligence, which stores human knowledge and uses the logic to formulate quick solutions for future problems.

**Research system:** Identifies the main management problems within the organization and provides alternative solutions, helping ensure all possible options are analyzed and the appropriate decision is made.

**Some of the important roles of the MIS:** Companies invest in a MIS for the following reasons-

* Increases operational efficiency
* Adds value to existing products
* Brings about innovation and new product development
* Identifies strengths and weaknesses within a company due to reports and records
* Provides access to a singular database that holds the data necessary for day-to-day operations
* Supplies a higher level of accountability, as inputs and moderations are logged and authors noted

MIS department at Dhaka WASA pays as the main actor in the field of Automation, Digitation and Computerization. MIS and Billing department performs almost all the works, procurement of goods and services for Networking, Hardware and Software purchase, Operation and Maintenance is done by MIS department art DWASA.

Most of the DWASA communication and IT structure and computers, servers, internet, database, software, data center, digitized records are created and maintained by MIS. DWASA Geographical Information System (GIS), Accounting Information System (AIS), Internal Audit, Planning, Revenue Divisions, Billing Division, Administration department also uses services of MIS.

MIS and billing department is allocated average yearly budget or around 6 to 7 Crore taka.

**Work & Budget Allocation for MIS & Billing Department**

|  |  |
| --- | --- |
| Ministry | LGRD & Co-operative |
| Division | Local Government Division |
| Agency | Dhaka WASA |
| Procuring Entity | Senior Systems Analyst (MIS & Billing Dept.), Dhaka WASA. |
| Method of procurement | Most of the works will be done by Direct Procurement Method (DPM) and |
| Approver | Work will be approved by Head of Procuring Entity or Managing Director. |
| Budget Source | Own Fund / Revenue |
| Budget Heads | Allocation (Lakh Taka) |
| 1. Computer Repair & Maintenance | 3.06 |
| 1. Repair & Maintenance | 151.00 |
| 1. Computer Purchas | 491.96 |
| Total Allocation (amount in Lakh Taka) | 646.02 |

**ANNUAL PROCUREMENT AND WORK PLAN, FINANCIAL YEAR 2020-21**

|  |  |  |
| --- | --- | --- |
| **S/N** | **Description of Procurement package** | **Cost in TK.** |
|  |  | Contract Amount (TK.) |
|  | Software |  |
| 1 | Online PIMS Software Development | 3,35,000 |
| 2 | Pension Software Development and Online Bank Payment Service update of Billing System | 1,65,000 |
| 3 | Land and e-Lab Software Development | 5,00,000 |
| 4 | Accounting Software purchase and Development for Accounts Division of Dhaka WASA. | 37,50,000 |
| 5 | Online Electricity, Gas and Others Billing Information Preservation and Management software of Dhaka WASA. | 1,76,400 |
| 6 | Mobile application Development of Dhaka WASA. | 5,46,525 |
| 7 | Real-time Online Billing Software Upgradation. | 19,50,000 |
| 8 | Private DTW and Water New Connection Security System. | 4,39,500 |
|  | **1 – 8 Carried over from previous year** |  |
| 9 | Audit Software Upgradation | 4,50,000 |
| 10 | Digital Archiving of Employee Information of Dhaka WASA | 8,00,000 |
| 11 | Residence Management software | 8,00,000 |
| 12 | Private DTW, Store Inventory and Water New Connection Annual Maintenance Contract | 1,50,000 |
| 13 | PIMS, Pension, Payroll System Upgradation. | 5,00,000 |
| 14 | Loan Approval Process, Loan and Payroll Data Migration Tools | 9,00,000 |
| 15 | Enhancement work of Private Deep Tube well | 3,00,000 |
| 16 | Complaint Management Software for FM Division | 10,00,000 |
|  | Software Sub total | **12,762,425** |
|  | Hardware |  |
| 17 | Computer, Printer, Scanner, UPS & Laptop for Revenue Department | 91,00,000 |
| 18 | Line Printer for Billing Print | 1,96,00,000 |
| 19 | Purchase of a Multifunction color printer for the office of the Chief Revenue Officer of Dhaka WASA. | 3,98,640 |
| 20 | Purchase of Desktop computer offline UPS, Power Strip for Accounts Department and a mini Projector (Portable) for the Chairman of Dhaka DWASA | 5,17,525 |
| 21 | Online UPS Servicing of Computer Center Server Room | 1,57,550 |
| 22 | Photo copier Printer Servicing for Revenue Zone-5 of Dhaka WASA. | 19,200 |
| 23 | Computer, Printer, Scanner, UPS & Laptop for All other Department of Dhaka WASA. | 60,00,000 |
| 24 | Hardware Accessories for Regular Maintenance. | 2,95,000 |
|  | Hardware sub-total | **3,60,87,915** |
|  | Networking |  |
| 28 | Online Billing (Internet VPN-Central Internet 530mbps) Connection among Revenue, MODS and other Dept. of Dhaka WASA. | 26,71,200 |
| 29 | 200MBPS Backup Internet Connection for WASA Bhaban | 10,08,000 |
| 30 | 5mbps Internet Connection for AMR | 60,000 |
| 31 | Grameenphone Data Connectivity bill for backup billing connection of Dhaka WASA. | 1,44,000 |
| 32 | 2 no Network and Hardware Technician | 8,20,115 |
| 33 | 5mbps Data Connectivity for Revenue Zone-11, Narayanjonj. | 61,800 |
| 34 | Security Devices Collection for Revenue Zones of Dhaka WASA | 7,95,000 |
|  | 28 – 34 Carried over from previous year on Network |  |
| 35 | Update and New Billing Network Establishment for Revenue Zone-2 and 4 | 5,74,625 |
| 36 | Update/New Billing/Internet Network Establishment for Accounts, Central Laboratory Dasherkandi and Land Dept. of Dhaka WASA. | 3,95,650 |
| 37 | Update and New Billing Network Establishment for Revenue Zone 6 and Devices for regular maintenance of Dhaka WASA. | 4,95,350 |
| 38 | Update and New Billing Network establishment for MODS Zone8, Eater (R&M) Div-1, Sydabad Phase-3. | 4,93,050 |
| 39 | 50mbps internet connection establishment in Savar-Keranigonj Wellfield plant. | 5,33,500 |
| 40 | Network Accessories for Regular Maintenance | 14,00,000 |
| 41 | Billing and Internet Network Upgradation for Revenue, MODS, DMA Manager and other Departments. | 20,00,000 |
|  | Network Sub total | **1,14,52,290** |
| 42 | Emergency Allocation | 42,99,500 |
|  | **Grand Total=** | **6,46,02,130** |

**ANNUAL PROCUREMENT AND WORK PLAN, FINANCIAL YEAR 2021-22**

|  |  |
| --- | --- |
| Budget Source | Own Fund / Revenue |
| Allocation for MIS & Billing Department | |
|  |  |
| Budget Heads | Allocation (Lakh Taka) |
| 1. Computer Purchase | 526.44 |
| 1. Computer Maintenance | 100 |
| 1. Call Center Cost | 73.15 |
| 1. Rest of the amount of Budget of 2021-2022 of MIS & Billing Dept. (Serial No 3 to 10) | 10.58 |
| Total Allocation (amount in Lakh Taka) | 710.17 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Summary** | | | |
| Budget Head | Budget Allotment | Budget estimated for purchasing goods | Emergency fund |
| Computer Purchase | 526.44 | 512.11 | 14.33 |
| Computer Maintenance | 100.00 | 100.00 | 0 |
| Call Center Cost | 73.15 | 0.00 | 73.15 |
| Sub Total | - | 612.11 | 87.48 |
| **Total** | **699.59** |  |  |

|  |  |  |
| --- | --- | --- |
| **S/N** | **Description of Procurement package**  **(Works/Goods)** | **Estimated Cost in Lakh TK.** |
|  |  |  |
|  | **Networking** |  |
| 1 | Online Billing (Internet VPN-Central Internet 530mbps) Connection Among Own Fundenue, MODS and Other Dept. of Dhaka WASA. | 11.00 |
| 2 | 200 Mbps Backup Internet Connection for WASA Bhaban (Mango) | 5.40 |
| 3 | 5 mbps Internet Connection for AMR | 0.60 |
| 4 | 50 mbps Internet connection establishment in Savar-Keranigonj Wellfield plant. | 1.80 |
| 5 | Internet and Security device for Integrated Water Operative Center (IWOC) at WASA Bhaban | 1.38 |
| 6 | Purchase of required network accessories for managing director sir division of Dhaka WASA. | 5.76 |
| 7 | Purchase of Internet bandwidth centrally for online billing and internet related service among Own Funded Zones, MODS Zones and All other departments of Dhaka WASA. | 30 |
| 8 | Purchase of required network accessories for MODS Zone-3, Magistrate Court-2 and DESWSP of DWASA. | 5 |
| 9 | Network equipment purchase for regular maintenance ant various dept. of DWSAS. | 80 |
| 10 | Network Switch and Router purchase for DWASA Bhaban | 37 |
|  | **For Network Total Goods** | **208** |
|  | **Software** |  |
| 11 | Central WiFi at DWASA Bhabon | 30 |
| 12 | Online PIMS Software Development | 3.35 |
| 13 | Pension Software Development and Online Bank Payment service update of Billing Section | 1.65 |
| 14 | Land and E Lab Software Development | 5.00 |
| 15 | Accounting Software for Accounts Division, Dhaka WASA. | 13.00 |
| 16 | Online Electricity, Gas and Other bills information preservation and management software of Dhaka WASA. | 1.76 |
| 17 | Mobile Application Development for Dhaka WASA. | 2.90 |
| 18 | Real time online billing software upgradation | 19.50 |
| 19 | Private DTW and Water New Connection security systems | 4.40 |
| 20 | Residence management software | 7.80 |
| 21 | Private DTW Work enhancement | 3.00 |
| 22 | Complain management software | 5.00 |
| 23 | Loan Approval Process, Loan and Payroll Data Migration Tools | 9.00 |
| 24 | PIMS, Pension, Payroll System Upgradation. | 5.00 |
| 25 | Digital Archiving of Employee information of DWASA | 8.00 |
| 26 | Software for Public Information Division | 5.00 |
| 27 | Contractor Enlistment Software. | 6.00 |
|  | **12 – 27 Sub Total of Carried Over Goods Total: 100.36** | **100.36** |
| 28 | Audit Software Up gradation | 10.00 |
| 29 | Payroll Software Development | 5.00 |
| 30 | New Connection, DTW and Inventory Software | 1.50 |
| 31 | Software for Supply Chain Management. | 35.00 |
| 32 | Web based inventory, POS & Production Management Software. | 5.50 |
| 33 | Software for Land Record & Tax Payment for Land Division | 2.00 |
| 34 | API for BIDA | 5.50 |
| 35 | Software for Welfare Department | 5.00 |
| 36 | Software for DA Section | 8.00 |
| 37 | Software for Employee personal information update process | 10.00 |
| 38 | Software for MIS online report | 5.00 |
|  | Subtotal of goods to be done | 92.50 |
|  | **For Software Total Goods** | **192.86** |
|  | **Hardware** |  |
| 39 | Procurement of Server, WM ware and related services for keep running of software’s used in digitization of Dhaka WASA | 54.50 |
| 40 | Urgent purchase of Display for Dhaka WASA Board Room. | 6.81 |
| 41 | PC, UPS, Printer and Scanner for Dhaka WASA | 130.00 |
| 42 | Hardware Accessories for PC and Printer | 10.00 |
| 43 | Hardware Accessories for PC and Printer | 5.00 |
| 44 | Hardware Accessories for PC and Printer | 5.00 |
|  | **For Hardware total Goods 211.31** | **211.31** |
| 45 | Urgent and Unforeseen works/goods/services to be done under sudden emergency requirement. | 87.48 |
|  | **Total** | **699.59** |
|  | **Goods to be done subject to the Availability of Budget** |  |
|  | **Budget Head: Computer Purchase/Computer Maintenance/Call Center Cost.** |  |
| 46 | PC, UPS, Printer and Scanner for Dhaka WASA. | 130.00 |
| 47 | Line Printer for Own Funded Zones of Dhaka WASA | 185.00 |
| 48 | Storage for Server of Dhaka WASA. | 180.00 |

**Digital/Online Billing and Bill Payment:**

The WASA Authority has created a website where we can get all the information and payment system.

**Dhaka WASA bill statement:** The bill statement is a part and parcel for the people of Dhaka. Because it is the most important things. The bill statement will show your current water bill, bill payment last date. As a result, it is your duty to collect the Dhaka WASA Bill statement. The citizen of Dhaka can easily check their water bill from online. Because DWASA authority has customized the system of paying bills through online. You should to know the right method.

**How to calculate WASA bill:** Firstly- you need to visit- <http://app.dwasa.org.bd/>website. Then, put your Account Number (The number is mentioned on your Bill Card), Put Your Password (Your Account Number is your Password), finally- you can get your Bill Card. Put your Date Format which you want to check your Bill. Search it and you can check your Bill now.

**Dhaka WASA bill payment system:** After checking the bill, you need to complete your payment. In this modern era, it is really easy to make the payment. You can pay your bill through bKash, Nagad and Rocket.

The full procedure -

* Open the Mobile App bKash, Nagad or Rocket. Go to Payment section. Go to Bill Payment. Go to Dhaka WASA Bill. Enter your Meter Number. Put your amount of Bill. Enter your Pin Number. Complete your payment.

Digital billing and online bill payment has made it easy for consumers to pay bill and bill collection of DWASA has increased.

**Accounting / AIS:**

**Geographical Information System (GIS):**

Following functions were implemented-

**Water, Sewer and Drainage Networking Mapping:** Many have characterized Geographic Information Systems (GIS) as one of the most powerful of all information technologies because it focuses on integrating knowledge from multiple sources and creates a crosscutting environment for collaboration. GIS is a system for the management, analysis, and display of geographic knowledge, which is represented using a series of information sets. In the present study, GIS will be used to organize the data for usage in water distribution networks design, and analysis.

**DMA and Water Network:** A district metered area (DMA) is defined as a discrete area of a water distribution network. However, a DMA can also be created by permanently disconnecting pipes to neighboring areas. Dhaka WASA has already planning to build about 144 DMA using GIS tools.

**Deep tube well mapping:** Deep tube well is the only source of underground water which distributed to city dwellers. The Deep tube well position with information has been built in GIS. Using these data, can help to provide comments before installation of new Deep Tube wells both DWASA and private owned.

**Land Mapping:** To proper management of WASA land, old Land maps has been converted to digital maps using GIS tools.

**Surface Water Transmission line Mapping:** Dhaka WASA has four water treatment plant. Under those surface water treatment plants, all transmission line has been converted in digital format using GIS tools.

**Base line Mapping:** Dhaka WASA has built land, road, water body, house position, bridge, culvert and also other utilities network mapping.

**House Connection mapping:** Dhaka WASA has been determined to be with Digital Bangladesh and progressing to step by step development to achieve the Goal. In this Stage, DWASA has taken initiative to make Smart Metering. GIS mapping for House Connection can be the first step to turn smart metering

**Valve mapping:** Valve point are using to proper maintenance for water service area. So it's very important to know the location and related information of Valve. Mapping of Valve position has been built in GIS including information to provide better operation and maintenance. Flow control, pressure sustaining and reducing valve are using in DMA management.

**Bulk Meter mapping:** Bulk meter are using to estimate inflow/ import and outflow/export into adjacent DMA areas for calculation of water loss. So it's very important to know the location and related information of Bulk meter. Mapping of bulk position has been built in GIS.

**Digital elevation modelling (DEM):** Ground elevation is the important component for water, sewer and drainage network.

**LIC Mapping:** As a part of the plan to bring all slum and Low Income Community areas in Dhaka city under water distribution service, prepare GIS database for LICs – 25000 households done.

**Zonal Billing Mapping:** Billing information is being joined with these maps; as a result of which is possible to find out connection status, non-metered household and connection type etc. for better understanding of physical features of service areas.

**A few works have been done:** Scan and digitize of about 1200 system maps on Water, Sewer and Drainage line. Upload of all types of maps to DWASA website. GPS survey Based mobile apps for water, sewer and drainage network.

**Plans are underway to:** Develop GIS Based on Web Platform for Dhaka WASA, Integrate whole billing system with GIS, Integrate SCADA system with GIS.

**DWASA GIS Annual Budget:** DWASA Computer-GIS mainly operates, maintains and modify existing software, servers, web portals / Apps supplied by vendors or MIS division.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Head | FY 2020-21 | FY 2021-22 | Remarks |  |  |
| Computer-GIS Total Budget | 242.64 | 253.79 | Lakh Taka |  |  |
| Capital Expenditure | 141.80 | 154.59 | Lakh Taka |  |  |
| Operating Expenditure | 100.84 | 99.20 | Lakh Taka |  |  |